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MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 77

September, 1920.

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U.S. Department of Agriculture

FOREST ENTOMOLOGY

A. D. Hopkins, Forest Entomologist in Charge

H. E. Burke of the Pacific Slope Laboratory at Los Gatos, Calif., spent two days during the month at Santa Barbara, Calif., on the estate of the Hon. Julius Kahn, where there has been injury to the oak trees by the Pacific oak twig-girdler (*Agrilus angelicus* Horn). This borer kills the twigs by making a spiral mine under the bark and in the wood. Branches up to one inch in diameter are girdled and killed. A control project will be instituted.

H. E. Burke and R. D. Hartman spent two days the first of the month with officials of the Pacific Telephone and Telegraph Co. at Watsonville, Salinas, Monterey, and Hollister, Calif., looking over the lead-sheathed aerial cables, where the suspension rings had been treated with soft tallow to prevent damage by the cable borer (*Scobicia declivis* Lec.). This method is apparently the only effective manner of preventing damage. Experiments with various lead alloys, chemical preventives, and different types of suspension rings, both at Los Gatos, Calif., and Falls Church, Va., have all as yet proved ineffective. Some seasons the damage is quite serious, moisture penetrating through the holes made by the borer through the insulation and causing a short circuit at the time of the fall rains.

J. H. Pollock of the Southern Rocky Mountain Field Station at Colorado Springs, Colo., states that a great deal of damage is being done annually to young spruce trees in Colorado by a species of Pissodes, presumably *P. engelmanni* Hopk., which kills the terminal shoot. On the eastern slope of the mountains, in the northern part of the State, almost one-half of these young conifers are being attacked year after year by this insect. Also in the central part of the State extensive depredations are found. Here the damage is especially noticeable on the older trees located in the bottoms of canyons and swales where, because of an abundance of soil and moisture, the trees usually make the best growth. During recent years thousands of spruce seedlings have been transplanted in this State on areas where the forests have been destroyed by insects and fire, and in the near future these too will be exposed to the ravages of this insect unless controlled.

During the month, at the request of the Small Arms Division of the Ordnance Department, U. S. A., a large amount of black walnut and birch gun stock blanks and hand guards stored at New Cumberland, Pa., was inspected by Dr. T. E. Snyder to determine the condition of the material with special reference to preventing insect damage. Such damage can easily be avoided by the system of piling, classification into species, separation of sapwood from heartwood, and annual inspection, with particular stress upon the utilization of stock which has been seasoned the longest.

At the Aircraft Storage Depot located at Middletown, Pa., where a large amount of hardwood lumber is stored, there was found quite a little damage by Lyctus powder-post beetles to the sapwood of black walnut. This

Branch lays special stress on the fact that much damage to forest products can be prevented by simple adjustments in the methods of manufacture, piling, and storing.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. R. Walton, Entomologist in Charge,

George B. Pearson, a graduate of Mississippi A. & M. College, has been appointed field assistant in insect control and detailed to W. H. Larrimer's staff at West Lafayette, Ind., for work on the Hessian fly and other cereal insects. Mr. Pearson reported for duty September 7.

W. R. Walton, accompanied by L. H. Worthley, in charge of the control work against the European corn borer, visited the western New York area of infestation during the week of September 13. At Buffalo they were joined by Prof. George G. Atwood and Dr. E. P. Felt of the New York entomological staff. A program for the fall work against the corn borer in western New York was agreed upon. Members of the party also visited St. Thomas, Ont., in company with Mr. Arthur Gibson, acting Dominion Entomologist, and his assistant, L. S. McLaine. The purpose of the visit was to inspect a portion of the area infested by the Eurppean corn borer in the Province of Ontario. An area of intense infestation at least 100 square miles in extent exists to the southward of St. Thomas, where the insect has done considerable damage to the flint variety of field corn grown in that region during the past summer. While there the party was joined by Dr. J. H. Grisdale, Deputy Minister of Agriculture of the Dominion of Canada. The total area of infestation in the Province of Ontario is as yet undetermined, but is believed to be between 1,200 and 1,500 square miles.

TROPICAL AND SUBTROPICAL FRUIT INSECT INVESTIGATIONS

C. L. Marlatt, Entomologist in Charge

Charles A. Bennett who was conducting the camphor thrips investigations at Satsuma, Fla., has resigned from the Bureau to enter the automobile business. The camphor thrips investigations are being continued under the supervision of W. W. Yothers.

Harold H. Link, temporary field assistant, employed at Orlando, Fla., has resigned to attend the University of Florida.

Dr. A. T. Speare has recently returned from a trip to Florida, where he was conducting investigations on entomogenous fungi, particularly those that are parasitic upon insects injurious to citrus.

G. F. Moznette has nearly completed his manuscript on avocado insects and expects to offer it for publication in the near future.

W. W. Yothers was in Washington during September for a conference with Mr. Marlatt regarding the taking over of the station at Satsuma and the continuation of the investigations started by Mr. Bennett. Various phases of the work on his citrus projects were discussed and plans were made for him to attend the Citrus Seminar at Gainesville in October.

A. C. Mason has been assigned to work on biological studies of rust mites, and is associated with Mr. Yothers at Orlando.

Ernest L. Chambers, assistant in charge of the temporary field station at Doylestown, Pa., who was conducting experiments on the life history and control of the strawberry rootworm (Paria canella) has resigned to continue his training at the Ohio State University.

Charles A. Weigel, who is directing the work on the strawberry rootworm, visited the station at Doylestown during September to take over the work until an assistant can be secured to continue the investigations started by Mr. Chambers.

R. S. Woglum, who for many years has been in charge of the tropical and subtropical laboratory at Alhambra, Calif., has resigned his position to be Director of the Department of Entomology in the California Fruit Grower's Exchange. The important work which Mr. Woglum has done for the Bureau is largely reflected in published reports on fumigation of citrus orchards.

Arthur D. Borden, who has been Mr. Woglum's assistant for several years in California and who has also had other assignments in the Bureau of Entomology in Washington and elsewhere, succeeds Mr. Woglum in charge of the California station. In addition to his being Mr. Woglum's chief assistant, Mr. Borden has had charge, during the last year, of a special investigation of the two important date-palm scale insects and has recently completed for publication a report entitled "The biology of the Marlatt scale (Phoenicococcus marlatti Ckll.)," which, it is hoped, will soon be printed. A joint paper by Messrs. Woglum and Borden has also just been completed for publication entitled "Control of the Citrophilus mealybug." The work recorded in this report is one of the very successful outcomes of the results of the California station, and the methods developed by the authors have been adopted by practically all growers in the invaded district with the result that it is now even difficult to find enough mealybugs to maintain a breeding stock of natural enemies in the local insectary. These same authors have also completed a manuscript on the Argentine ant, the control of which is an essential part of the control of the mealybug.

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Mabel Colcord, Librarian

New Books

Aberdeen and North Scotland college of agriculture. Bulletins, 1920, by John Anderson.

No. 25. Some hints for prospective beekeepers. 8 p.
No. 26. The natural history of bees. 28 p., 2 plates.
No. 27. How to handle bees. 19 p., illus.

Dammerman, K. W. Landbouwdierkunde van Oost-Indie. De schadlijke nuttige dieren voor land-, tuin-en boschbouw in Oost-Indie. Amsterdam, J. H. de Bussy, 1919. 368 p., illus., 39 plates (part colored). Literature, p. 327-332.

Emerson, F. W. Agricultural geology. 319 p., illus. New York, John Wiley & Son; London, Chapman & Hall. 1920. Soil maps, p. 299-303.

Ferris, G.F. Scale insects of the Santa Cruz Peninsula. 57 p., illus. Stanford Univ., Calif. 1920. (Stanford Univ. Pub. Univ. Ser. Biol. Ser. v. 1, No. 1.)

Great Britian-Forestry commission Bulletin 2, Survey of forest conditions in the British Isles. 35 p., illus., 3, pl., map. London, Printed and published by His Majesty's stationery office, May, 1920.

Hirst, Stanley. The genus Demodex Owen. 44 p., illus., 13 pl. (British Museum (Nat. Hist.) Dept. of Zoology. Studies on Acari No. 1.)

Howe, R. H. Manual of the Odonata of New England. 102 p., illus., fold. pl. Concord, Mass., Middlesex School, 1917-1920. (Thoreau Museum Natural History. Memoir 2.)

Loeb, Jacques. Forced movements, tropisms and animal conduct. 209 p., illus. Philadelphia and London, J. B. Lippincott Co., 1918. Literature, p. 173-205.

Maxson, A.G. Principal insect enemies of the sugar beet in the territories served by the Great Western Sugar Company. 157 p., 9 col. pl. Denver, Great Western Sugar Company, Agricultural Department, 1920.

Official army register for 1920. Published by order of the Secretary of War, The Adjutant General's Office. 1188 p. January, 1920.

Taubenhaus, J. J. Diseases of greenhouse crops and their control. 429 p. New York, E.P.Dutton & Company, 1920; Greenhouse insects, p. 365-378.

Veitch, Robert. The corn borer in Fiji. 23 p., illus. Sydney, Oct.,1919. (Colonial Sugar Refining Company. Agricultural Report No. 4) Rhabdocnemis obscura.

Virginia State entomologist and plant pathologist. Report 12 for 1918-19. January, 1920. (Virginia State Crop Pest Commission, Quar. Bul., v. 1, No. 4.)

TRUCK CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge

A serious outbreak of the Mexican bean beetle (*Epilachna corrupta* Muls.) has been reported from north-central Alabama over an area covering portions of 10 counties centering about Birmingham, where 50 per cent of the bean and cowpea crops have been destroyed. C. H. Popenoe and J. E. Graf have just completed a trip of inspection in the infested locality and report that the damage resulting from the attack in Alabama is, if possible more complete than that ordinarily accomplished in Colorado, in which State the growing of beans is ordinarily rendered unprofitable through injury by this pest. While in view of the short time during which observations have been possible, definite predictions can scarcely be made as to the results which may be expected in the eastern United States, it is significant that the bean beetle has, during a period of two years which have elapsed since its observed introduction at that point, accomplished a radical change in its habits through the adoption of the cowpea as a food plant, a host previously unrecorded. In the Southwest the bean beetle ranges from altitudes of 3,000 to 7,000 feet and survives winter temperatures of more than 30° below zero, indicating a capacity for surviving any temperature in which beans are grown. In an average season between frosts of spring and fall, covering approximately 150 days in Colorado, two generations are ordinarily reared. Indications in the Alabama infested territory, where a season of 240 frostless days is possible, are that at least three generations, and possibly four, may occur. Should it be found impossible to check the eastward progress of this pest, there is the probability of as disastrous results to the bean and cowpea industries of the South as the Colorado potato beetle and cotton bollweevil have occasioned to the crops which they attack. The bean beetle is one of the most destructive pests in the region which it inhabits and has as great possibilities for destructiveness as the Colorado potato beetle, which it resembles in many respects. The exact distribution of this pest, which appears to have been introduced in shipments of alfalfa hay or bean seed from Colorado during war times, is not at present as well defined as desirable.

Entomologists will confer a favor by sending suspected specimens to this office for determination, since the practicability of an eradication campaign will depend upon whether the distribution east of the Mississippi River is restricted to the region now known to be infested in Alabama.

J. W. Hendry, W. H. Merrill, and S. C. Brummitt, of the office of Truck Crop Insect Investigations, have been assigned to make a brief preliminary survey as to the extent of the Alabama infestation.